



Polk Audio
dX Series
Dynamic Balance® Component Systems

Premium Performance Loudspeakers

Owner's Manual

dX3055 System

dX3065 System

dX3000 Tweeter

dX5510 Mid/Woofer

dX6510 Mid/Woofer



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<http://www.polkaudio.com>

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**Attach your receipt
here and file for future
reference. It may
be required for
warranty service.**

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Polk Audio—A History of Excellence

Polk Audio was founded in 1972 by Matthew Polk and George Klopfer. Their dream was to make speakers with the performance of the world's best speakers, at a reasonable price. They did so by applying scientific principles to speaker design and by concentrating solely on the speaker business. That is how Polk became known as "The Speaker Specialists."

Today Polk Audio is still headquartered in Baltimore, Maryland, and is now one of the world's largest manufacturers of home and car loudspeakers. Polk's research has yielded over 20 patents for advances in loudspeaker performance and value. Polk speakers have earned the praise of audio experts the world over, as well as dozens of awards for innovative, high-quality design. Polk Audio speakers are sold in over 50 countries and in audio/video specialist retail locations throughout the US.

Founders Matthew Polk and George Klopfer still work alongside 300 dedicated Polk team members to bring you the best speakers you can buy.

A Word From Matthew Polk

Dear Music Lover,

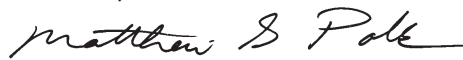
Thank you for purchasing Polk Audio speakers. Designing and building speakers is more than just a business for the people of Polk Audio – it is our passion. We are all dedicated to your complete satisfaction and delight.

Your new Polk speakers include the latest loudspeaker technology to assure outstanding performance and unmatched quality. Please take a moment to read through this manual for information on getting the greatest enjoyment from these fine instruments.

We make a wide variety of automotive loudspeakers, including factory replacements, coaxes, component systems, tweeters and subwoofers. If you would like more information on building the Polk car system of your dreams, consult your Polk Audio dealer or call our Customer Service Department at 1-800-377-7655 from 9am to 6pm, Eastern Time, Monday through Friday or contact us via our World Web Site at <http://www.polkaudio.com>.



Sincerely,

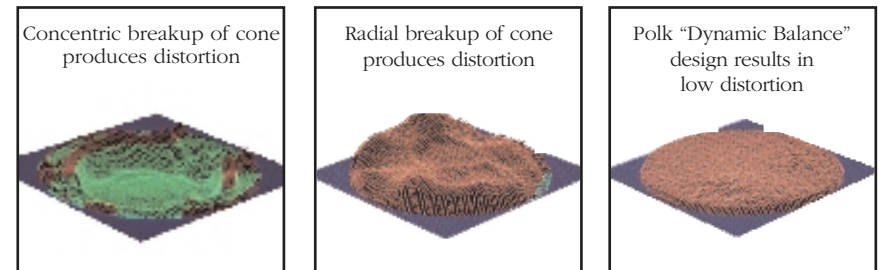


Matthew S. Polk

The Story of Dynamic Balance®

Your new Polk speakers employ Dynamic Balance, a technology which came out of a joint research project between Polk Audio and Johns Hopkins University. This laser imaging research enables us to view the entire vibrating surface of a driver or tweeter, allowing us to observe the resonances which develop on speaker cones as they move. These resonances are the root cause of frequency response distortions.

As an x-ray enables a physician to discover the root cause of a symptom and thereby prescribe the right treatment for a cure, this laser imaging technique allows Polk engineers to find the right combination of high-tech materials, geometry and construction techniques to tune out the offending resonances. The benefit of Dynamic Balance is the dramatic improvement in the sound quality of our speakers, which every listener can appreciate. You no longer have to choose between excellent bass and smooth, clear midrange and highs. Now you can have it all, thanks to Dynamic Balance technology.



Laser Interferometry tests produced holographic “photos” of drivers in motion. The “bad” drivers are experiencing modal breakup that results in performance-robbing resonances. A “perfect” driver would look like a cake (flat on top), more, like the photo on the right.

dX Series Component Systems Feature:

- Blue tri-laminate silk composite dome tweeters for more accurate response, superior detail and high power handling: “Bright Without Bite.”
- Dynamic Balance mineral filled polymer cone driver for clear, well-defined midrange and great bass, too.
- Pivoting tweeter allows you to aim the tweeter in the direction that yields the best high frequency response and soundstaging.
- Co-molded polymer/rubber surround provides superior bass response and will not dry rot like foam surrounds.
- Neodymium (NdFeb) magnets offer powerful magnetic energy from small magnets. You get great sound and a tweeter so small that it is easy to fit and mount in a wide variety of locations.
- Three position tweeter level switch for precise high frequency optimization for your car.
- Adjustable crossover point and slope provides 12 different combinations of settings, allowing you to precisely tailor the system sound to suit your car’s acoustics, and your ears.
- Coated baskets and gold-plated terminals resist rust and corrosion for years of reliable performance.

Getting Started

Please inspect each loudspeaker carefully. Notify your Polk dealer if you notice any damaged or missing items. Keep the carton and packing material. They will do the best job of protecting your speakers if they need to be transported. Check that you have the following parts:

dX3055 and dX3065:

- 2 mid/woofers
- 2 tweeters
- 2 crossover networks
- 2 tweeter flush mount cups
- 2 flush mount cup clamps
- 2 tweeter surface mount cups
- 2 tweeter angle mount cups
- 2 grilles
- 4 - #4 screws
- 8 - #8 screws
- tweeter hook-up wire
- mid/woofer hook-up wire
- registration card

dX3000:

- 2 tweeters
- 2 in-line crossover networks
- 2 tweeter flush mount cups
- 2 flush mount cup clamps
- 2 tweeter surface mount cups
- 2 tweeter angle mount cups
- 4 - #4 screws
- registration card

dX5510 and dX6510:

- 2 mid/woofer drivers
- 2 grilles
- 8 speed clips
- 8 - #8 screws
- registration card

Read this manual thoroughly first. If you have any doubts about your ability to execute any of the installation steps, save yourself a lot of grief and contact a professional installer (your Polk dealer is a good place to find one).

If you intend to do the installation yourself we assume that you possess some skill in the proper use of hand and power tools. No matter how much installation experience you have, it’s always a good idea to:

- Read this manual thoroughly before you begin.
- Plan your installation carefully.
- Allow enough time to complete the installation without rushing.
- Protect your car from unwanted scratches.

Necessary Tools

- Phillips head screwdriver
- Flat blade screwdriver or putty knife
- Electric drill
- 1/4" and 1/8" drill bits
- Reciprocating saw or razor knife
- Magic marker for marking the cutout (new location only)
- Metal cutting tool (hole saw, if you intend to cut metal)
- Metal file
- Soldering iron or a supply of solderless connectors
- Safety glasses
- Wire strippers and cutters
- Crimping tool

Installing the Components

The dX System Crossovers

You will need to make wiring connections from your amp or radio to the crossovers and from the crossovers to your mid/woofers and tweeters (Figure 1). Choose crossover box locations that are convenient for making these connections. As there are adjustments on and in the crossover networks which you will need to access during the “fine tuning” stage of the installation, place them in a spot that’s easy to get to. Once you’re done fine tuning the system, the crossovers can be hidden away and secured.

Your dX Series crossovers have terminals which are clearly marked for wiring connections. Before making connections between your crossovers, and the mid/woofers and tweeters, refer to Figure 1. The wires provided with your dX System have one conductor with a white stripe. Use this wire as the positive (+) lead and connect it to the positive (+) terminals on your crossovers as well as to the positive (+) terminals of each speaker.

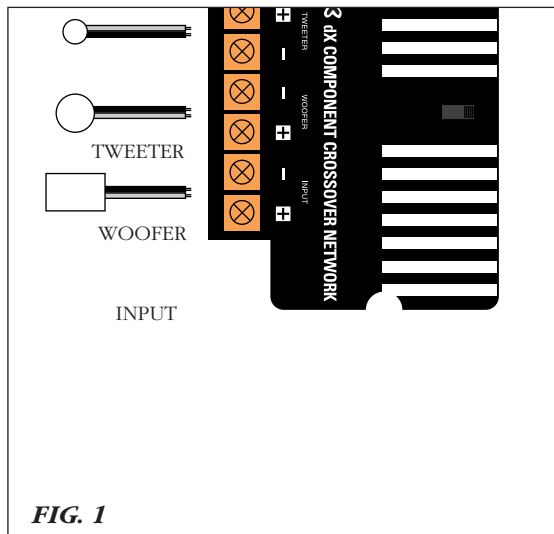


FIG. 1

(Note: Crossover is not weather proof)

Installing the dX System Mid/Woofers in Factory Locations

Most cars have speaker grilles that blend with the rest of the car’s interior. Sometimes it is difficult to determine how to remove these grilles to gain access to the speaker that you intend to replace. If you have one of these grilles, you may want to consider using a professional installer. On some cars, the grilles are held by screws or spring clips. The screws will be obvious, the spring clips won’t.

If there are screws, remove them, put them in a safe spot, and remove the grilles. To remove a clip-on grille, use your flat-blade screwdriver or a putty knife to gently pry up the grille. If it resists, back off and think again about the professional install. The cost of one of these can sometimes be less than the cost of new door panels. Some grilles are integral parts of the door panel and are not removable. In these cases you will need to remove the entire door panel to gain access to the speaker location. This will usually require removal of door handles, window mechanisms, and perhaps other parts such as door pulls and lock buttons.

1. Once you get the grille off, remove the factory speakers. Save the hardware. You may be able to reuse it to mount your new speaker.
2. Cut the supplied tweeter wire in half.
3. Attach speaker wires to the crossover “woofer” terminals. Attach the wire with the white stripe to the positive (+) terminal screw, and the un-stripped wire to the negative (-) terminal screw.
4. Using a crimping tool, attach faston connectors to the speaker end of each of the wires going from the crossover to the mid/woofer.
5. Slip the faston connectors onto the input terminals on the mid/woofers. Be sure to attach the wire with the white stripe to the positive (+) terminal, and the un-stripped wire to the negative (-) terminal.
6. If the factory speaker had three screw holes, you’ll need to drill additional screw holes to accommodate the four screw pattern of the dX mid/woofer.
7. Using the hardware retained from the factory speaker or the screw clips supplied with the dX speaker, secure your new speaker to the car panel.

Installing the Mid/Woofers in Non-Factory Locations

If you have decided to install your dX Series mid/woofers in locations other than those provided by the automobile manufacturer, make certain that the location you choose is clear of all obstructions, both in front of and behind the panel, before you proceed. Pay particular attention to window mechanisms and any body panels critical to the structural integrity of the vehicle. The mounting depths and cutout diameters of your dX Series mid/woofers are listed with all the other important specifications at the end of this manual.

1. Cut a hole in the panel. The grilles supplied with the dX Series drivers can be used as a template for marking the cutout holes.
2. Using the speaker grille as a template for marking the locations of the four screw holes.
3. Drill the holes with a 1/8" bit.
4. Attach the screw clips to the car panel at the hole locations.
5. Cut the supplied tweeter wire in half.
6. Attach speaker wires to the crossover "woofer" terminals. Attach the wire with the white stripe to the positive (+) terminal screw, and the un-striped wire to the negative (-) terminal screw.
7. Using a crimping tool, attach faston connectors to the speaker end of each of the wires going from the crossover to the mid/woofer.
8. Remove the mesh grille from the grille frame and pass the wire through the grille frame.
9. Slip the faston connectors onto the input terminals on the mid/woofers. Be sure to attach the wire with the white stripe to the positive (+) terminal, and the un-striped wire to the negative (-) terminal.
10. Place the speaker into the grille frame and line up the screw holes with the screw clips on the car panel.
11. Secure the speaker/grille frame assembly to the car panel with the supplied screws.
12. Place the mesh grille in the grille frame.

dX System Tweeters

One important advantage of component systems is their ability, when properly installed, to improve the soundstage created by the music in your car. The soundstage is the musical "picture" made up of the instruments and vocalists. The difference in the soundstage will be dramatic depending on where you mount your tweeters. We recommend a simple experiment that will help you decide the best spot for your tweeters in your car. Here are the steps:

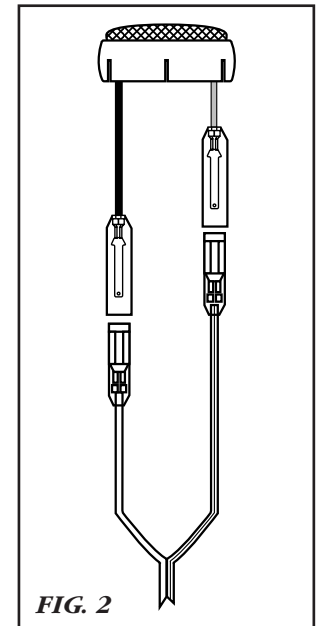
1. Complete the installation of your entire system except for the dX3000 tweeters.
2. Connect the wires provided with your tweeters to the tweeter terminals on your dX crossovers.
3. Without running the wires through doors or under upholstered panels, connect your dx tweeters to these wires.
4. Have a friend sit in the passenger's seat while you sit in the driver's seat, each holding a tweeter in hand.

5. With music playing, position the tweeters in different locations around the passenger compartment, listening for the differences caused from these placements. We recommend using vocals for this test. You will be able to determine in a short time the best location for your tweeters.

The Polk dX3000 tweeter offers two mounting options for installation flexibility.

Mounting Option #1- Surface flat or angle base mounting the dX3000 Tweeter

1. Using the base of the surface mount cup as a template, mark the screw hole and drill it using a 1/8 inch drill bit. Mark the wire hole (for the tweeter wires), drill using the 1/4 inch drill bit.
2. Attach the surface mount cup to the panel using supplied #4 screws.
3. Push the tweeter wires through the hole in the bottom of the cup and through the panel.
4. Cut the wire supplied in the box in half.
(Check that the connector ends are the same as those on the tweeter.)
5. Connect wires from the tweeter terminals of the crossover to the tweeter wires. Be sure that connector ends are the same as those on the tweeter. Connect the white striped wire strand to the (+) terminal of the crossover tweeter output and to the red wire on tweeters (Figure 2).
6. Mount the tweeters by twist-locking them onto the base, being careful not to pinch the wires.



Mounting Option #2 - Flush mounting the dX3000 Tweeter

1. Remove the panel on which you are going to mount the tweeter and check for proper clearance behind it. The flush mount kit is 1 inch deep. Measure to make sure there is sufficient depth behind the spot you choose.
2. Use the template which is provided as a separate sheet in the owner's manual to mark the location and size of the mounting hole.
3. Mark the center of the hole and cut a 2.1 inch hole with razor knife or reciprocating saw.

4. Insert front half of flush cup into the hole and manually push clamp ring (Figure 3) on until cup is tight on front surface.
5. Put tweeter in bottom half of flush cup and twist lock to front half of assembly created in step 4.
6. Cut the supplied tweeter wire in half.
7. Connect wires from the tweeter terminals of the crossover to the tweeter wires. Be sure that connector ends are the same as those on the tweeter. Connect the white striped wire strand to the (+) terminal of the crossover tweeter output and to the red wire on tweeters (Figure 2).
8. The tweeter can now be pivoted to the desired angle by applying firm pressure to the edge of the tweeter module.

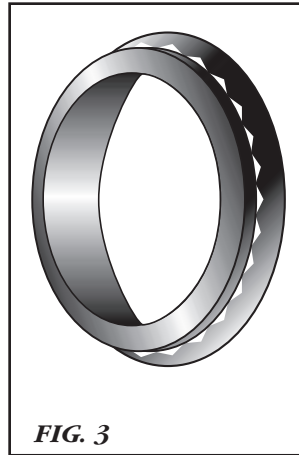


FIG. 3

dX3000 Component Tweeter Hook-up

When purchased as a separate unit, the dX3000 tweeter includes a crossover network integrated into the hook-up wires. This high pass filter allows the dX3000 to be used with other components. It is important to maintain correct polarity. The red wire connects to the positive (+) amplifier terminal and the black to the negative (-) amplifier terminal.

If your system contains an active crossover, you may bypass the in-line crossover and wire the tweeter directly to the output terminals of an amplifier which has a high pass filter (crossover) on its input. The minimum crossover point should be 2 kHz at 12dB per octave.

DO NOT USE THE TWEETER WITHOUT A CROSSOVER NETWORK.

Damage to the tweeter from thermal overload will result without the protection provided by a crossover and will void your warranty.

Fine Tuning Your dX Component System

Now it's time to fine tune your dX component system to get best sound quality possible. The dX systems are designed to allow you to adjust the sound to best suit your car's acoustics and your personal taste.

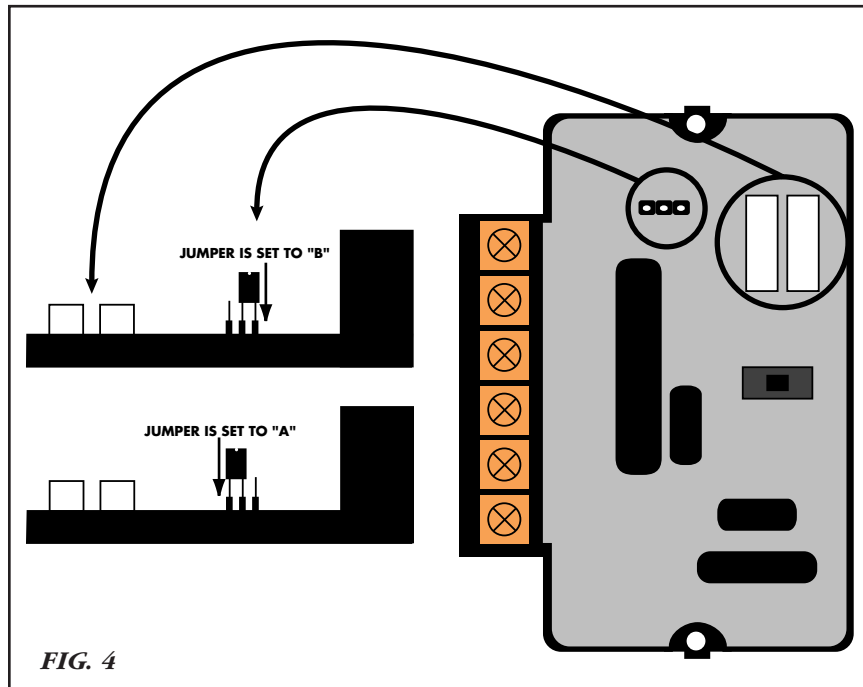
Each of the adjustments described below makes a subtle but audible change. There are 12 possible combinations of settings in the crossover alone to aid you in getting the perfect sound for your ears in your car. A table showing all the possible combinations appears below. Take your time, try all the options. Your patience will be rewarded.

| <u>Setting #</u> | <u>J2 Position</u> | <u>Tweeter Polarity</u> | <u>Tweeter Level</u> |
|------------------|--------------------|-------------------------|----------------------|
| 1 | A | + | +3dB |
| 2 | A | + | 0dB |
| 3 | A | + | -3dB |
| 4 | B | + | +3db |
| 5 | B | + | 0dB |
| 6 | B | + | -3dB |
| 7 | A | - | +3dB |
| 8 | A | - | 0dB |
| 9 | A | - | -3dB |
| 10 | B | - | +3dB |
| 11 | B | - | 0dB |
| 12 | B | - | -3dB |

Crossover Frequency And Slope

The frequency point and slope of the low pass crossover may be adjusted. Remove the two small Philips head screws from the bottom of the crossover box. Remove the top cover, inside the box you'll see a wire jumper "J2" (Figure 4). If your tweeter is right next to your mid/woofer, set the jumper to "A." If your tweeter is more than 6 inches away from the mid/woofer, set the jumper to "B."

The "B" position sets the low pass crossover point of the mid/woofer at 3,800Hz with a first order (6dB/octave) roll off. Position "A" sets the crossover point of the mid/woofer at 3,800Hz with a second order (12dB/octave) roll off. The high pass filter is always fixed at 4,800 Hz with a second order (12dB/octave) roll off.



Tweeter Level

The slide switch on top of the crossover box adjusts the level (volume) of the tweeter relative to the mid/woofer. Start with the switch in the bottom position and listen. If you want a "brighter" sound, move the switch to the middle position and listen again. The top position provides the greatest amount of tweeter output.

Polarity / Blending

If it seems that the tweeters and mid/woofers are not "blending" or working together in harmony, try changing the polarity of both the tweeters by reversing the positive (+) and negative (-) tweeter wires at the crossover. Reversing the absolute phase of the tweeters may help the blending or integration of the system components, particularly if the tweeters and mid/woofers are on different planes.

Tweeter Angle

The dX3000 tweeters may be pivoted to get the best high frequency response and soundstaging. Generally, pointing the tweeters toward the listening position will yield the best results. But don't be afraid to try other angles. Use the position that sounds best to you.

Pivot the tweeter module by applying firm pressure on the edge of the tweeter module. DO NOT APPLY PRESSURE TO THE DOME ITSELF.

Amplifier Power Requirements

Your speakers will work well with a variety of electronic components. As little as 20 watts (RMS) per channel will deliver adequate listening levels in most cars. If you have a noisy car or intend to play your system at loud listening levels, more power is necessary to achieve the best performance. Consult your Polk Audio dealer for specific recommendations.

Safe Limits Of Operation

Your Polk loudspeakers are made with the highest quality materials for years of trouble-free performance. However, damage to loudspeakers can occur when an amplifier, regardless of its wattage, is made to play at higher listening levels than its power can cleanly produce (usually beyond the “2 to 3 o’clock” position on the volume control).

This results in very high levels of audible distortion, originating in the amplifier, which adds a harsh, gritty sound to the music. Contrary to popular belief, a speaker is more likely to be damaged by trying to get too much volume from a low-powered amp or receiver than from a high-powered one.

Technical Assistance Or Service

If, after following the hook-up directions, you experience difficulty, please double check all wire connections. Make sure that your electronic equipment is operating correctly by hooking up another speaker to the speaker output. For example, if you are not getting sound from the left channel speaker, connect the right channel speaker to the left output. If you still get no sound from that side, the problem is in your amp or source electronics. Should you isolate the problem to the speaker, contact the authorized Polk Audio dealer where you made your purchase. Authorized Polk Audio dealers are the best source for advice and assistance.

Call Polk Audio’s Customer Service Department at 1-800-377-7655 from 9am to 6pm, Eastern Time, Monday through Friday. Please do not hesitate to call us if you have questions about your speaker system.

dX3055 comprised of dX5510 and dX3000

dX3065 comprised of dX6510 and dX3000

Specifications

| | dX5510 | dX6510 | dX3000 |
|---------------------------------------|--|--|--|
| Recommended Amplification | 5-100 watts | 5-100 watts | 5-100 watts |
| Impedance(DCR) | 4.0 ohms | 4.0 ohms | 4.0 ohms |
| Frequency Response (+/-3dB) | 60 Hz-5.5 kHz | 45 Hz-4.5 kHz | 2 kHz-20 kHz |
| Sensitivity (1w/1m) | 86 dB | 85 dB | " +3dB" - 87 dB* " 0dB" - 84 dB " - 3dB" - 81 dB |
| Magnet Weight | 13.5 oz | 13.5 oz | 5 oz |
| Mounting Depth top mount | N/A | N/A | 1" flush mount 1.315" surface mount height |
| Mounting Depth top mount w/out grille | 2 9/16" 65.1 mm | 2 3/4" 69.9 mm | N/A N/A |
| Mounting Depth top mount with grille | 2 7/16" 61.9 mm | 2 5/8" 66.7 mm | N/A N/A |
| Mounting Depth bottom mount | 2 3/4" 69.9 mm | 3" 76.2 mm | N/A N/A |
| Grille Height | 7/8" 22.2 mm | 15/16" 23.5 mm | N/A N/A |
| Grille Diameter | 6 1/4" 159 mm | 7 3/16" 183 mm | N/A N/A |
| Crossover Frequency | B=3800 Hz A=3800 Hz | B=3800 Hz A=3800 Hz | 4800 Hz |
| Crossover Order | B = 1st Order Butterworth A = 2nd Order Butterworth | B = 1st Order Butterworth A = 2nd Order Butterworth | B = 1st Order Butterworth A = 2nd Order Butterworth |

*When dX3000 bought separately sensitivity = 90 dB with loop intact/3400 Hz

When dX3000 bought separately sensitivity = 87 dB with loop cut/3400 Hz

Dynamic Balance® Series Mid/Woofers Technical Sheet

THEILE / SMALL PARAMETERS

| | dx5510 | dx6510 |
|-------------------------|---|---|
| Freq. Response | 60Hz-5.5kHz | 45Hz-4.5kHz |
| Resonant Freq. (Fo, Fs) | 72 Hz | 47 Hz |
| Qms | 5.46 | 4.54 |
| Qes | 0.68 | 0.69 |
| Qts | 0.61 | 0.60 |
| Vas | 4.34L .153 ft ³ | 13.32L .470 ft ³ |
| Cms | 329 µm/N | 658 µm/N |
| BL | 5.73 TM | 5.08 TM |
| Sd | .0097m ² .1040ft ² | .0120m ² .129 ft ² |
| Mms | 14.1 g | 16.9 g |
| Winding Width | 12.7mm .500in. | 12.7mm .500in. |
| Xmax (Linear) | 3.35mm .132in. | 3.35mm .132in. |
| Xmax (Mechanical) | 13.33mm .525in. | 13.33mm .525in. |
| Le | .23mH | .23mH |

dx Series 1 Year Warranty

Polk Audio, Inc. warrants the original purchaser only that this Polk Audio dx Product (the Product) will be free from defects in materials and workmanship for a period of (1) one year from the date of original retail purchase from a Polk Audio Authorized Dealer. However, this warranty will automatically terminate prior to the expiration of the (1) one year period if the original retail purchaser sells or otherwise transfers the Product to any other party. The original retail purchaser shall herein after be referred to as "you." To allow Polk Audio to offer the best possible warranty service, please fill out the Product Registration Card(s) and send them to the Factory at the address provided in the Registration Card within (10) ten days of the date of purchase.

Defective Products must be shipped, together with a proof of purchase, prepaid insured to the Authorized Polk Audio Dealer from whom you purchased the Product, or to Polk Audio, 2550 Britannia Blvd., Suite D, San Diego, CA 92154. Products must be shipped in the original shipping container or its equivalent; in any case the risk of loss or damage in transit is to be borne by you. If, upon examination at the Factory or Polk Audio Authorized Dealer it is determined that the unit was defective in materials or workmanship at any time during the Warranty period, Polk Audio or the Polk Audio Dealer will, at its option, repair or replace this Product at no additional charge, except as set forth below. All replaced parts and Products become property of Polk Audio. Products replaced or repaired under this Warranty will be returned to you, within a reasonable time, freight prepaid.

This Warranty does not include service or parts to repair damage caused by accident, disaster, misuse, abuse, negligence, inadequate packing or shipping procedures, commercial use, voltage inputs in excess of the rated maximum of the unit, cosmetic appearance of the cabinetry not directly attributable to defects in materials or workmanship, or service, repair, or modifications of the Product which has not been authorized or approved by Polk Audio.

This Warranty is in lieu of all other expressed Warranties. If this Product is defective in materials and workmanship as warranted above, your sole remedy shall be repair or replacement as provided above. In no event will Polk Audio, Inc. be liable to you for any incidental or consequential damages arising out of the use or inability to use the Product, even if Polk Audio, Inc. or a Polk Audio Dealer has been advised of the possibility of such damages, or any other claim by any other party. Some states do not allow the exclusion or limitation of consequential damages, so the above limitation and exclusion may not apply to you. This Warranty gives you specific legal rights which may vary from state to state.

This warranty applies only to Products purchased in the United States of America, its possessions, and U.S. and NATO armed forces exchanges and audio clubs. The Warranty terms and conditions applicable to Products purchased in other countries are available from the Polk Audio Authorized Distributors in such countries.